

MEADOWLARK TRAILER COURT (PWS 7330014) SOURCE WATER ASSESSMENT FINAL REPORT

November 7, 2002



State of Idaho Department of Environmental Quality

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Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated source water assessment area and sensitivity factors associated with the well and aquifer characteristics.

This report, *Source Water Assessment for Meadowlark Trailer Court, Rexburg, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

Final susceptibility scores are derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, inorganic chemical (IOC, i.e. nitrates, arsenic) contaminants, volatile organic chemical (VOC, i.e. petroleum products) contaminants, synthetic organic chemical (SOC, i.e. pesticides) contaminants, and microbial contaminants (i.e. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

The Meadowlark Trailer Court drinking water system consists of two well sources. Well #1 has a automatic high susceptibility rating to IOCs, VOCs, SOCs, and microbial contamination due to 1500 North Road being within 50 feet of the wellhead. In addition, the well has a moderate rating in hydrologic sensitivity, a high rating for system construction, and a large amount of agricultural land uses contributing IOC and SOC constituents. The second well (#2) rates high susceptibility for IOCs and moderate susceptibility for VOCs, SOCs, and microbial contaminants. These would be the ratings for well #1 if the local road did not pass through the 50-foot sanitary setback.

The well has not recorded the presence of total coliform bacteria, VOC, or SOC contamination during any water chemistry tests. The IOCs fluoride and beryllium have been detected, but at levels below the maximum contaminant levels (MCLs) as set by the EPA. The IOC nitrate has been detected at levels ranging from 7.59 milligrams per liter (mg/L) in June 1998 to 4.26 mg/L in November 2000.

The Meadowlark Trailer Court presently does not have a disinfection system in place. Though there have not been chemical problems with the system water, Meadowlark Trailer Court should be aware that the potential for contamination from the aquifer still exists. Surrounding agricultural land use practices have contributed to the ratings of “High” for County Level Nitrogen Fertilizer Use, County Level Herbicide Use, and Total County Level Agriculture-Chemical Use.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous

industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the Meadowlark Trailer Court, drinking water protection activities should focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity), including protecting the well from surface flooding. Also, disinfection practices should be implemented if microbial contamination becomes a problem. No chemicals should be stored or applied within the 50-foot radius of the wellhead. Additionally, there should be a focus on the implementation of practices aimed at reducing the leaching of farm chemicals from agricultural land within the designated source water areas and awareness of the potential contaminant sources within the delineation zone. Since much of the designated protection areas are outside the direct jurisdiction of the Meadowlark Trailer Court, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection. In addition, the well should maintain sanitary survey standards regarding wellhead protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineation contains some urban and residential land uses. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. As there are transportation corridors through the delineation, the Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive source water assessment protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Idaho Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR MEADOWLARK TRAILER COURT, REXBURG, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment is also included.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The public drinking water system for the Meadowlark Trailer Court is comprised of two ground water wells that serve approximately 69 people through approximately 19 connections. The wells are located in Madison County, one mile north of the City of Rexburg (Figure 1).

No volatile organic chemical (VOC) contaminants, synthetic organic chemical (SOC) contaminants, or microbials have been detected in the well water. The inorganic chemical (IOC) contaminants fluoride and beryllium have been detected, but at levels below the maximum contaminant levels (MCLs) as set by the EPA. The IOC nitrate has been detected at levels ranging from 7.59 milligrams per liter (mg/L) in June 1998 to 4.26 mg/L in November 2000. The MCL for nitrate is 10 mg/L. The delineation does cross areas of concern related to high ratings of “County Level Nitrogen Fertilizer Use”, “Country Level Herbicide Use”, and “Total County Level Ag-Chemical Use”.

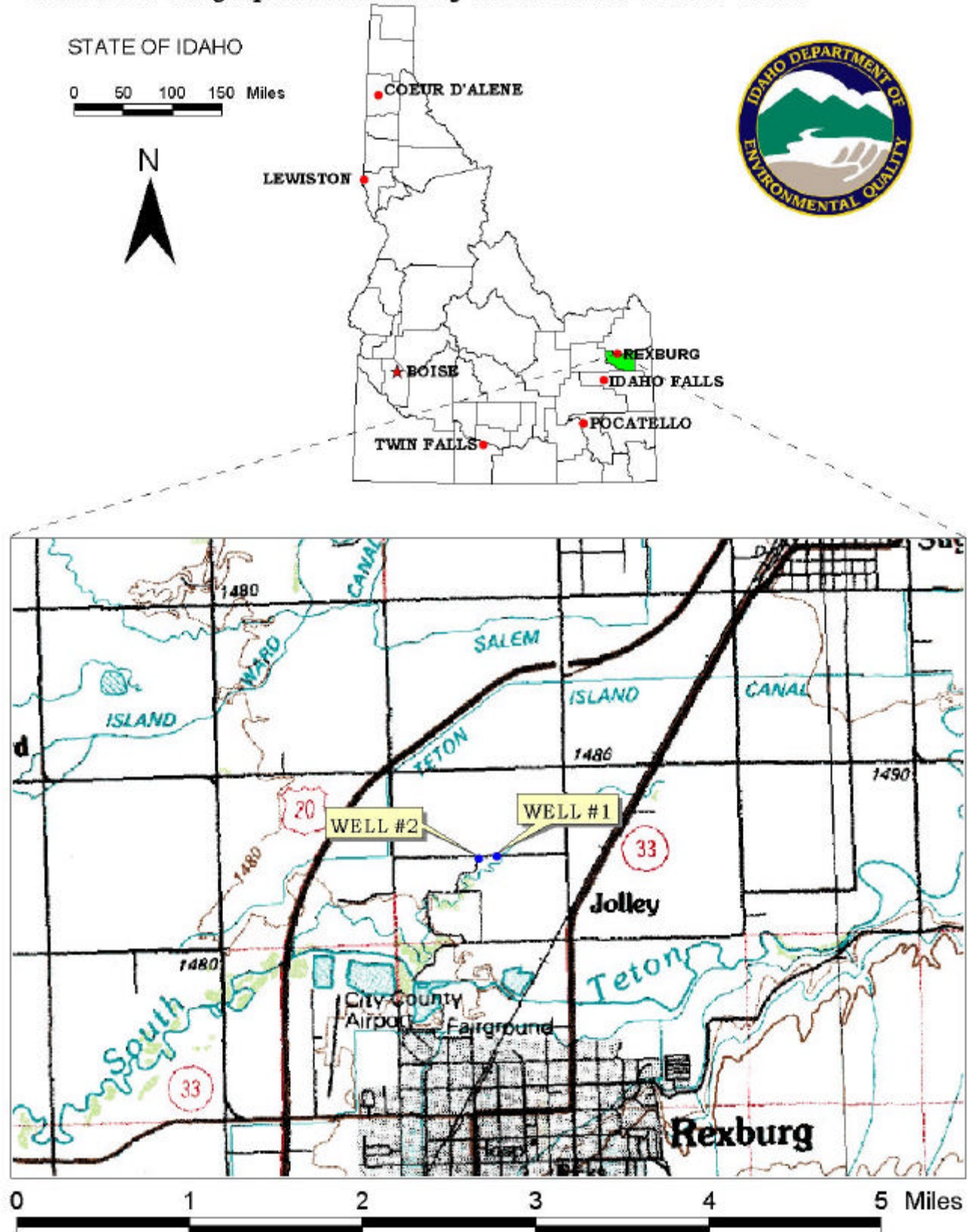
Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ contracted with Washington Group, International (WGI) to perform the delineations using a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the Eastern Snake River Plain (ESRP) aquifer in the vicinity of the Meadowlark Trailer Court well. The computer model used site specific data, assimilated by WGI from a variety of sources including the Meadowlark Trailer Court operator input, local area well logs, and hydrogeologic reports (detailed below).

The ESRP is a northeast trending basin located in southeastern Idaho. Ten thousand square miles of the basin are primarily filled with highly fractured layered Quaternary basalt flows of the Snake River Group, which are intercalated with terrestrial and lacustrine (lake-deposited) sediments along the margins (Garabedian, 1992, p. 5). Individual basalt flows range from 10 to 50 feet in thickness and average 20 to 25 feet (Lindholm, 1996, p. 14). Basalt is thickest in the central part of the eastern plain and thins toward the margins. Whitehead (1992, p. 9) estimates the total thickness of the flows to be as great as 5,000 feet. A thin layer (0 to 100 feet) of windblown and fluvial sediments overlies the basalt.

The plain is bound on the northeast by rocks of the Yellowstone Group (mainly rhyolite) and Idavada Volcanics to the southwest. The Snake River flows along part of the southern boundary and is the only drainage that leaves the plain. Rivers and streams entering the plain from the south are tributary to the Snake River. Other than the Big and Little Wood rivers, rivers entering from the north vanish into the highly transmissive basalts of the Snake River Plain aquifer.

FIGURE 1. Geographic Location of Meadowlark Trailer Court



The layered basalts of the Snake River Group host one of the most productive aquifers in the United States. The aquifer is generally considered unconfined, yet it may be locally confined in some areas because of inter-bedded clay and dense unfractured basalt (Whitehead, 1992, p. 26). Whitehead (1992, p. 22) reports that well yields of 2,000 to 3,000 gal/min are common for wells open to less than 100 feet of the aquifer. Lindholm (1996, p. 18) estimates aquifer thickness to range from several hundred feet near the plain's margin to thousands of feet near the center.

The majority of aquifer recharge results from surface water irrigation activities (incidental recharge), which divert water from the Snake River and its tributaries (Ackerman, 1995, p. 4, and Garabedian, 1992, p. 11). Natural recharge occurs through stream losses, direct precipitation, and tributary basin underflow.

The Upper ESRP hydrologic province is located on the northeastern margin of the ESRP. The majority of the province is located above the confluence of the South and Henrys Forks of the Snake River in southwestern Madison County. The province occupies portions of Fremont, Madison, Jefferson, and Bonneville counties. The province covers 445 square miles, which is 4.3 percent of the ESRP's total area.

Published water table maps specific to the Upper ESRP regional aquifer are limited. The few area-specific maps that are available (e.g., Crosthwaite et al., 1967, p. 27, and Baker, 1991, p. 10) show similar patterns of flow to those depicted at the regional scale. Regional ground water flow is to the southwest paralleling the basin (Cosgrove et al., 1999, p. 21; deSonneville, 1972, p. 78; Garabedian, 1992, p. 48; and Lindholm, 1996, p. 23). Ground water flow direction at the local scale is thought to be highly variable due to preferential flow paths through the fractured and layered basalts.

The delineated source water assessment areas for the Meadowlark Trailer Court well can best be described as a corridor approximately one mile long and one-half mile wide extending to the northeast of the Meadowlark Trailer Court (Figures 2 & 3). The actual data used by WGI in determining the source water assessment delineation areas are available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of groundwater contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the immediate area of the Meadowlark Trailer Court wellheads consists of irrigated agriculture and transportation uses, while the surrounding area is predominantly irrigated agriculture. A large parcel surrounding the wellhead consists of a large tract of land that is used for the land application of potato processing wastes. This constitutes a large portion of the high scores that the wells received for potential contaminant sources.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in July through August 2001. The first phase involved identifying and documenting potential contaminant sources within the Meadowlark Trailer Court Source Water Assessment Areas (Figures 2 and 3) through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the area.

The delineated source water areas encompass pie-shaped corridors of land between the well sites and extend about one mile to the east-northeast. The delineations (Tables 1 & 2, Figure 2 & 3) have nine potential contaminant sources, which include wastewater land application sites, manufacturing and repair shops and truck leasing companies. Two of the listed sources included in the analysis are historical businesses. They are not active in the production of any product at this time but the site was used in the past for contractor related work. The potential for possible contamination from one of these sources still exist because of delayed releases and travel time for potential contaminants.

Table 1. Meadowlark Trailer Court Well #1, Potential Contaminant Inventory

Site #	Source Description ¹	TOT ZONE ²	Source of Information	Potential Contaminants ³
1	Potato Processing WLAP	0 - 3	Database Search	IOC, Microbe
2	Truck Rental	3 - 6	Database Search	SOC, VOC
3	Grain Elevator	3 - 6	Database Search	IOC, SOC, VOC
4	Truck Rental	3 - 6	Database Search	SOC, VOC
5	Potato Processing WLAP	3 - 6	Database Search	IOC
6	General Contractors - historical	6 - 10	Database Search	IOC, SOC, VOC
7	Manufacturing - historical	6 - 10	Database Search	none
8	Manufacturing and repair	6 - 10	Database Search	IOC, SOC, VOC
9	Potato Processing WLAP	6 - 10	Database Search	IOC
	Transportation corridor	6 - 10	GIS Map	IOC, SOC, VOC

¹ WLAP = wastewater land application

² TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

³ IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Figure 2. Meadowlark Trailer Court Delineation Map and Potential Contaminant Source Locations

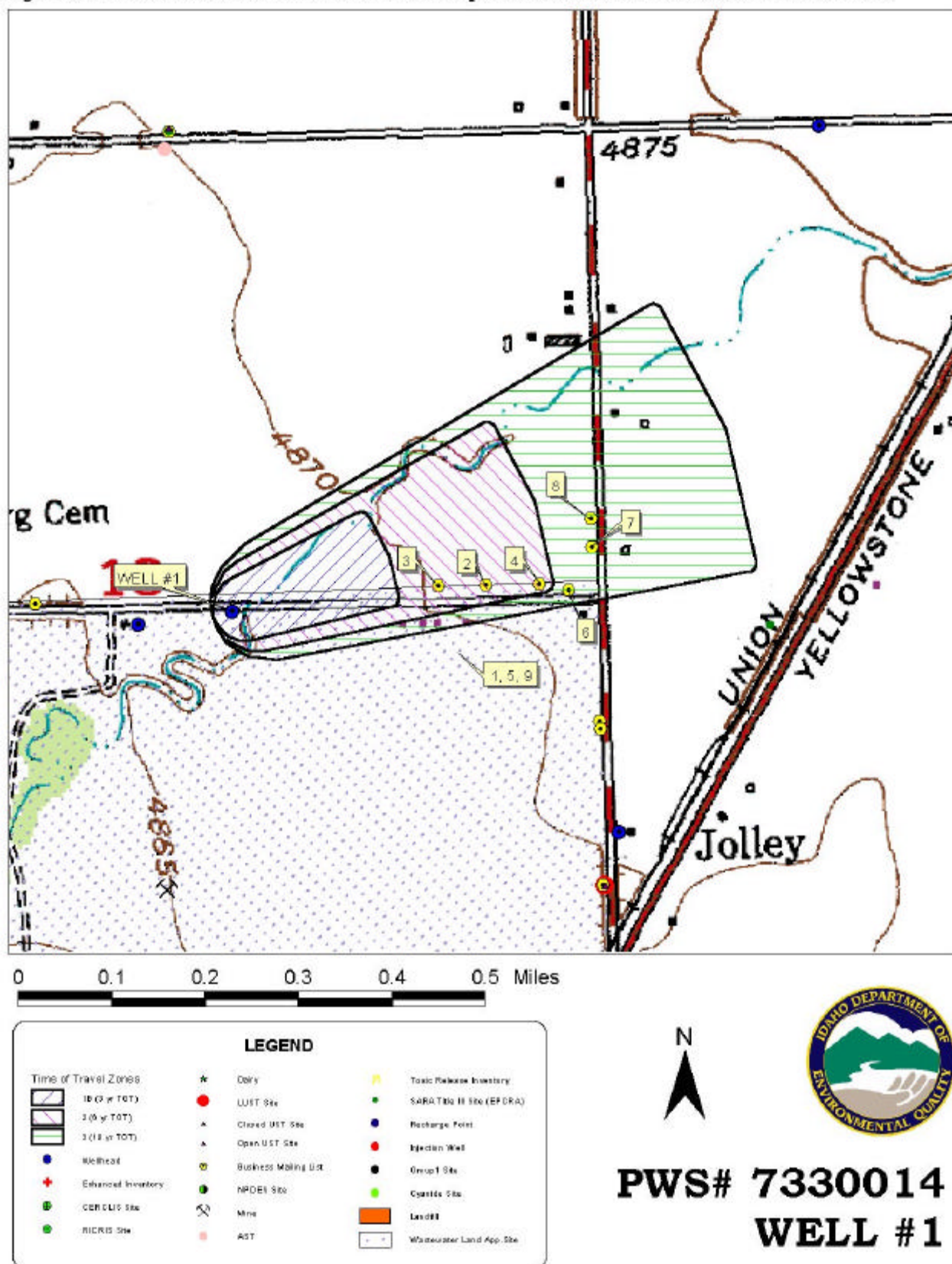


Figure 3. Meadowlark Trailer Court Delineation Map and Potential Contaminant Source Locations

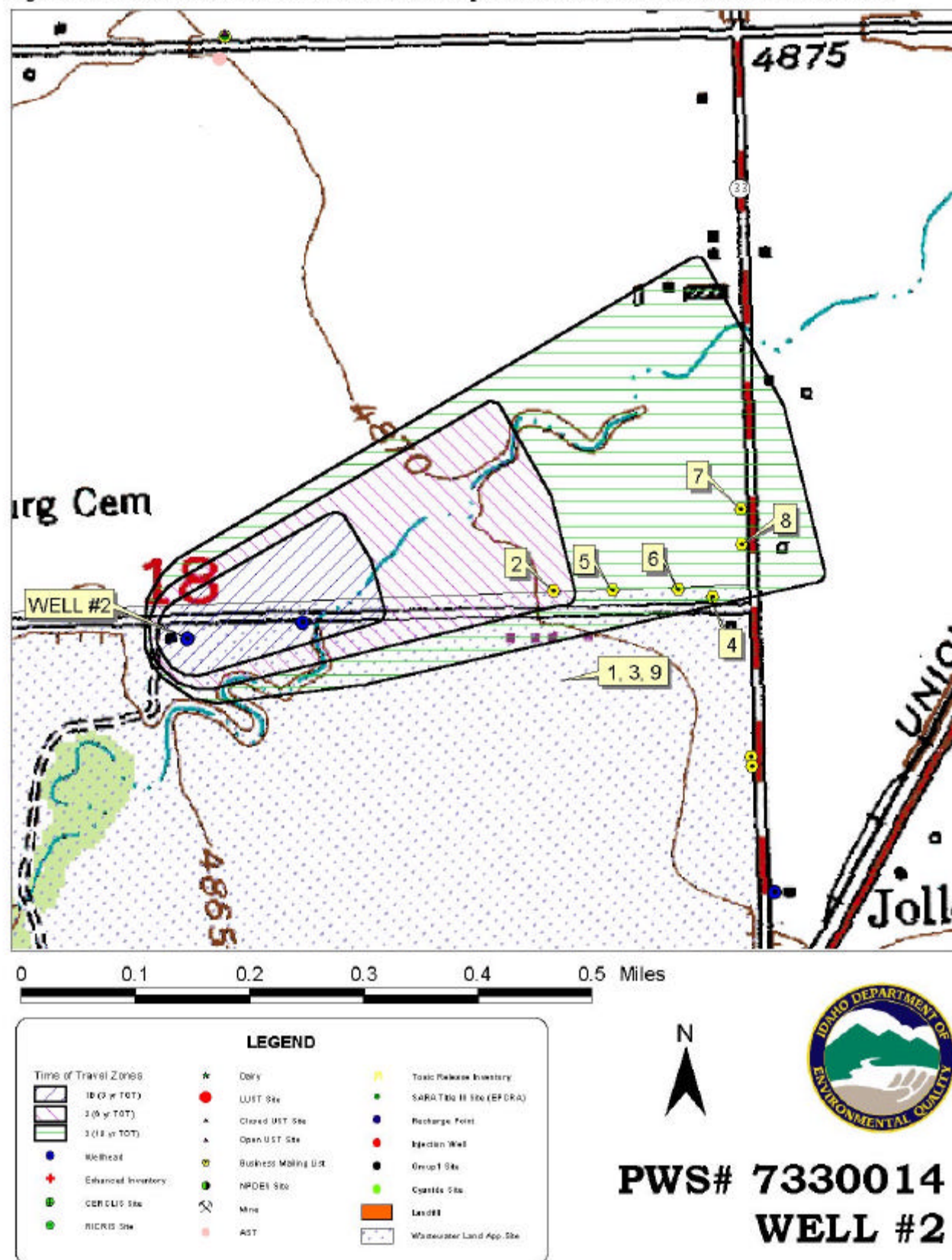


Table 2. Meadowlark Trailer Court Well #2, Potential Contaminant Inventory

Site #	Source Description ¹	TOT ZONE ²	Source of Information	Potential Contaminants ³
1	Potato Processing WLAP	0 - 3	Database Search	IOC, Microbe
2	Grain Elevator	3 - 6	Database Search	IOC, SOC, VOC
3	Potato Processing WLAP	3 - 6	Database Search	IOC
4	General Contractors - historical	6 - 10	Database Search	IOC, SOC, VOC
5	Truck Rental	6 - 10	Database Search	SOC, VOC
6	Truck Rental	6 - 10	Database Search	SOC, VOC
7	Manufacturing - historical	6 - 10	Database Search	none
8	Manufacturing and repair	6 - 10	Database Search	IOC, SOC, VOC
9	Potato Processing WLAP	6 - 10	Database Search	IOC
	Transportation corridor	6 - 10	GIS Map	IOC, SOC, VOC

¹ WLAP = wastewater land application

² TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

³ IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

Each well's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheets for the system. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Hydrologic sensitivity is moderate for both well 1 and 2 (Table 3). This is a result of the soils being in the poorly to moderately drained class, which tends to lower the chances of contaminants reaching the aquifer. On the other hand, the water table is less than 300 feet from the surface and there is a lack of sedimentary interbeds between basalt layers that could retard the downward movement of contaminants.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

Well #1 and #2 have a high system construction score. Though no well logs were available, the operator survey related that the wells have eight-inch diameter casing to about 60 feet below ground surface (bgs). The 1998 sanitary survey states that neither well has a watertight seal. In addition, well #1 has no sample tap or well vent and well #2 is open to insects. Both wells are protected from surface flooding to the extent that the surface casings extend a minimum of 12 inches above the finished ground surface.

A determination could be made as to whether current public water system (PWS) construction standards are being met, despite the lack of well logs. Since sanitary requirements are a part of the standards, not meeting wellhead protection requirements means that the wells do not meet current standards. The wells may have been in compliance with standards when they were completed, but current PWS well construction standards are more stringent. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. These standards include provisions for well screens, pumping tests, and casing thicknesses to name a few. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Eight-inch diameter wells require a casing thickness of at least 0.322-inches. Without a well log, the well was assessed an additional point in the system construction rating.

Potential Contaminant Source and Land Use

The wells rate high for IOCs (i.e. nitrates, arsenic), moderate for VOCs (i.e. petroleum products) and SOC (i.e. pesticides), and low for microbial contaminants (i.e. bacteria). A wastewater land application site and agricultural land uses in the delineated source area accounts for the largest contribution of points to the potential contaminant inventory rating. Each well has nine potential contamination sources within the delineated source area. The wells are in a county with high nitrate fertilizer use, high levels of herbicide use, and high total agriculture chemical use.

Final Susceptibility Ranking

A detection above a drinking water standard MCL or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Additionally, if there are contaminant sources located within 50 feet of the source then the wellhead will automatically get a high susceptibility rating. In this case, well #1 automatically rated high for all contaminant types because of a local road located within 50 feet of the well. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, Well 2 rates high for IOC's and moderate for all other contaminant categories.

Table 3. Summary of Meadowlark Trailer Court Susceptibility Evaluation

Well	Susceptibility Scores ¹									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	M	H	M	M	L	H	H*	H*	H*	H*
Well #2	M	H	M	M	L	H	H	M	M	M

¹H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

² H* = Well scores automatically high due to contaminants within 50 feet of source

Susceptibility Summary

Overall, Wells #1 and #2 rate high for IOC's. Well #1 rates automatically high for VOCs, SOC's, and microbials due to a local road within 50 feet. If the 50-foot radius area were free of potential contaminants, then the ratings would mirror well #2. Well #2 rated moderate for VOCs, SOC's, and microbial contaminants. The poorly-drained nature of the soils, the intense agricultural practices, the high county wide use of agricultural chemicals, and the existence of potential contaminant sources within the delineated area add up to the appropriate susceptibility ratings.

No VOCs, SOC's, or microbials have been detected in the well water. The IOC's fluoride and beryllium have been detected, but at levels below the MCLs as set by the EPA. The IOC nitrate has been detected at levels ranging from 7.59 mg/L in June 1998 to 4.26 mg/L in November 2000. The MCL for nitrate is 10 mg/L. The delineation does cross areas of concern related to high ratings of "County Level Nitrogen Fertilizer Use", "County Level Herbicide Use", and "Total County Level Ag-Chemical Use".

Section 4. Options for Drinking water protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the Meadowlark Trailer Court, drinking water protection activities should focus on correcting any deficiencies outlined in the sanitary survey, including protecting the well from surface flooding. Since microbial contamination represents a serious health threat to human health disinfection practices should be implemented if microbial contamination becomes a problem. No chemicals should be stored or applied within the 50-foot radius of the wellhead. Additionally, there should be a focus on the implementation of practices aimed at reducing the leaching of farm chemicals from agricultural land within the designated source water areas and awareness of the potential contaminant sources within the delineation zone. Since much of the designated protection areas are outside the direct jurisdiction of the Meadowlark Trailer Court, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection. In addition, all wells should maintain sanitary survey standards regarding wellhead protection and surface flooding.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineation contains some urban and residential land uses. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. As there are transportation corridors through the delineation, the Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive source water assessment protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Idaho Falls Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Idaho Falls Regional DEQ Office (208) 528-2650

State DEQ Office (208) 373-0502

Website: <http://www.deq.state.id.us>

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper (mlharper@idahoruralwater.com), Idaho Rural Water Association, at (208) 343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY

LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund® is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/L.

NPDES (National Pollutant Discharge Elimination System)

– Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

- Ackerman, D.J., 1995, Analysis of Steady-State Flow and Advective Transport in the Eastern Snake River Plain Aquifer System, Idaho, U.S. Geological Survey Water-Resources Investigations Report 94-4257, I-FY95, 25 p.
- Baker, S.J., 1991, Effects of Exchange Wells on the Teton River in the Rexburg-Teton Area, Madison and Fremont Counties, Idaho, Idaho Department of Water Resources, Open-File Report, 17p.
- Cosgrove, D.M., G.S. Johnson and S. Laney, 1999, Description of the IDWR/UI Snake River Plain Aquifer Model (SRPAM), Idaho Water Resources Research Institute, 95 p.
- Crosthwaite, G.E., M.J. Mundorff, and E.H. Walker, 1967, Ground-Water Aspects of the Lower Henrys Fork Region, Idaho, U.S. Geological Survey, Water-Resources Division, Open-File Report, 43 p.
- DeSonneville, J.L.J., 1972, Development of a Mathematical Groundwater Model: Water Resources Research Institute, University of Idaho, Moscow, Idaho, 227 p.
- Division Seven Health Department, 1994. GWUDI Field Survey for PWS #7220050. October, 1994.
- Garabedian, S.P., 1992, Hydrology and Digital Simulation of the Regional Aquifer System, Eastern Snake River Plain, Idaho, U.S. Geological Survey Professional Paper 1408-F, 102 p.
- Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "Recommended Standards for Water Works."
- Idaho Department of Agriculture, 1998. Unpublished Data.
- Idaho Department of Environmental Quality, 1997. Design Standards for Public Drinking Water Systems. IDAPA 58.01.08.550.01.
- Idaho Department of Water Resources, 1993. Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules. IDAPA 37.03.09.
- Lindholm, G.F., 1996, Summary of the Snake River Plain Regional Aquifer-System Analysis in Idaho and Eastern Oregon, U.S. Geological Survey Professional Paper 1408-A, 59 p.
- Whitehead, R.L., 1992, Geohydrological Framework of the Snake River Plain Regional Aquifer System, Idaho and Eastern Oregon, U.S. Geological Survey Professional Paper 1408-B, I-FY92, 32 p.

Attachment A

Meadowlark Trailer Court Susceptibility Analysis Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

1. System Construction		SCORE			
Drill Date	01/01/1977				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES	1998			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	NO	1			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		5			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		4			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	YES	YES	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	1	0	0	1
(Score = # Sources X 2) 8 Points Maximum		2	0	0	2
Sources of Class II or III leacheable contaminants or	YES	5	0	0	
4 Points Maximum		4	0	0	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	0	0
Land use Zone 1B	Greater Than 50% Agricultural Land	4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B		12	4	4	6
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	Greater Than 50% Agricultural Land	2	2	2	
Potential Contaminant Source / Land Use Score - Zone II		5	5	5	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0
Cumulative Potential Contaminant / Land Use Score		24	14	16	8
4. Final Susceptibility Source Score		14	12	12	12
5. Final Well Ranking		High*	High*	High*	High*

1. System Construction		SCORE			
Drill Date	01/01/1977				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES	1998			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	NO	1			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		5			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		4			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	1	0	0	1
(Score = # Sources X 2) 8 Points Maximum		2	0	0	2
Sources of Class II or III leacheable contaminants or	YES	5	0	0	
4 Points Maximum		4	0	0	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	0	0
Land use Zone 1B	Greater Than 50% Agricultural Land	4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B		12	4	4	6
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	Greater Than 50% Agricultural Land	2	2	2	
Potential Contaminant Source / Land Use Score - Zone II		5	5	5	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0
Cumulative Potential Contaminant / Land Use Score		24	14	16	8
4. Final Susceptibility Source Score		14	12	12	12
5. Final Well Ranking		High*	Moderate	Noderate	Moderate